

REMARKS

Claims 1-20 continue to be the pending claims in the application. Claims 2-6, 9-12, 14 and 15 are withdrawn. Claim 1 has been amended. Support for this amendment is found throughout the specification and specifically at paragraphs [0022], [0023], [0052], [0053], [0059], [0060], [0061], [0064], [0067], [0068] and the Abstract. Reconsideration of the application in light of the remarks which follow is respectfully requested. The Applicants also respectfully request that the Examiner reconsider the withdrawal of claim 8 from consideration. Claim 8 depends on claim 1.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 7, 13 and 16-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Horner Jr. et al. (U.S. Patent No. 6,365,533) in view of Martin et al. (U.S. Patent No. 5,713,974).

The Examiner states that Horner Jr. et al. teaches a foamed facer for an insulation board that comprises a fiber glass mat coated with a prefoamed composition comprising a thixotropic polymer latex (binder), a foam sustaining surfactant (surfactant generated microcells), a filler, such as clays and a flame retardant. The Examiner acknowledges that Horner lacks the teaching that the coating includes prefabricated microcells and that the metallic layer is adhered to the foamed facer.

The Examiner also states that Martin et al.'s invention relates to insulating microspheres for providing a high insulating value to insulating coatings and that it would have been obvious to the skilled artisan to combine Horner Jr. et al. and Martin et al. The Examiner then concludes that "since Horner Jr. et al. teaches that both aluminum foil and fiber glass mat are conventional facers, it would have been obvious to one of ordinary skill in the art to substitute the fiber glass mat of the foamed facer with an aluminum foil." The Examiner further

states in this regard that “the selection of a known equivalent material based on its suitability of its intended use supported a *prima facie* obviousness determination.”

The Claimed Invention

Claim 1 relates to a heat insulating and fire resistant composite material comprising a first layer which comprises a prefabricated microcells component, a surfactant component, surfactant-generated microcells, a filler component and a binder component and a second layer comprising a metallic component adhered to the first layer. Claims 7, 13 and 16-20 are dependent from Claim 1.

The Prior Art

Horner Jr. et al. disclose a facer member for use in the construction industry comprising a preformed fiber mat substrate coated on one side with a prefoamed, self-sustaining foam mixture. The facer member disclosed by Horner Jr. et al. can be used to manufacture insulation boards comprising a pair of facer members laminated to the surfaces of the foam core of a traditional insulation board. *See* Horner Jr. et al., col. 5, lines 34-39. Further, Horner Jr. et al. teach that the facer member may be fed directly to insulation board manufacture, e.g. a constricted rise laminator, “wherein the uncoated fiber surface of the mat contacts at least one exposed surface of a foamed or foamable thermosetting non-elastomeric core in the manufacture of an insulation board as described hereinafter.” Horner Jr. et al., col. 4, lines 19-26 (emphasis added). Furthermore, Horner Jr. et al. indicate that where the foamed coating on the facer is dried and/or cured, “the bonding strength between the uncoated fibers and the core material in the resulting product is enhanced due to reduced penetration of the coating mixture into the mat by reason of its prefoamed state.” Horner Jr. et al., col. 5, lines 4-8. Horner Jr. et al. further state that if the foam of the facer is completely cured before entering the laminator, “the core material

is either poured onto the uncoated fibrous surface of the facer or laminated thereto with adhesive or bonding agent.” Horner Jr. et al., col. 5, lines 8-12 (emphasis added). Thus, it is clear from the disclosure of Horner Jr. et al. that the uncoated fiber surface of the facer member should be in direct contact with the core material to produce an insulation board with enhanced bonding strength between the facer member and the core material. This is in line with the objective of Horner Jr. et al. to overcome the problems of delamination.

Horner Jr. et al. also state that the facer members “eliminate the need for heat retaining members at the top and bottom of the stack and significantly reduce the prior problem of the board’s susceptibility to cold temperature delamination.” Horner Jr. et al., col. 4, line 67 to col. 5, lines 1-4 (emphasis added). Horner Jr. et al. teach that the facer member insulation boards have tolerance to weathering and that they are superior and have broader application than other insulation boards, such as being useful as non-foil, non-glare sheathings. *See* Horner Jr. et al., col. 7, lines 9-12. This is consistent with Horner Jr. et al.’s description of the prior art in which foil was used which Horner Jr. et al. describe as “leading to disruption of cell structure, delamination and warping” and as costly and thus not desirable. *See* Horner Jr. et al., col 2, lines 20-24. Horner Jr. et al. do teach that other facers may be used in addition to the facer of the asserted invention. However, when they are used, the claimed inventive facer member is placed on one side of the foam core of a traditional insulation board, and the other facer (which may be aluminum foil) is placed on the other side of the foam core. *See* Horner Jr. et al., col. 5, line 62 to col. 6, lines 3-13.

Martin et al. disclose evacuated microspheres and methods of manufacture of the microspheres. The evacuated microspheres are indicated as being useful as thermal insulating materials when incorporated into insulating coatings. *See* the Abstract; col. 1, lines 8-11; and col. 3, lines 62-67.

There is No Prima Facie Case of Obviousness

The combination of Horner Jr. et al. and Martin et al. does not support a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the combined references must teach or suggest all the claimed limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and must not be based on the Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991); MPEP § 2142.

In this case, there is no suggestion or motivation in any of the cited references to alter Horner Jr. et al. to produce a composite material according to the present claims. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. See *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

“It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986).

Because virtually all inventions are combinations of old elements, “the suggestion to combine requirement stands as a critical safeguard against hindsight analysis”. *Yamanouchi Pharm. Co. v. Danbury Pharmacal, Inc.*, 231 F.3d 1339, 1343 (Fed. Cir. 2000). See also *Grain Processing Corp. V. Am. Maize-Prods. Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988) (“the question is whether there is something in the prior art as a whole to suggest the desirability, and thus, the obviousness of making the combination”); *Gillette v. S.C. Johnson & Son, Inc.*, 919 F.3d 720,

724 (Fed. Cir. 1990) (“Focusing on the obviousness of substitutions and differences, instead of on the invention as a whole, is a legally improper way to simplify the often difficult determination of obviousness”).

In its recent decision in *KSR Int’l Co. v. Teleflex Inc.*, 27 S.Ct. 1727, 1734, 82 USPQ2d 1385 (2007), the Supreme Court noted that it had previously set out a framework for applying the statutory language of § 103 in *Graham v. John Deere Co.*, 383 U.S. 1 (1966) in which it held that the analysis is objective:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

Graham 382 U.S. at 17-18.

Referring to this framework set out in *Graham*, the Supreme Court in *KSR* further stated that “while the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls.” *KSR*, 27 S.Ct. at 1735.

The Supreme Court in *KSR* also stated that

when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product [is] not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

Id. at 1742, Emphasis added.

Here, the Supreme Court made clear that only in the instance where there are a finite number of identified predictable solutions, can the standard of “obvious to try” be applied and even then, this standard does not necessarily result in a finding of obviousness because it only “might” show that it was obvious.

In the case of *In re Fritch*, 972 F.2d 1260, 1266 (1992) the Federal Circuit forbid “hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention”. See also *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-51 (Fed. Cir. 1988) (“The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time[.]”).

As noted above, the Examiner states that Horner Jr. et al. teaches a foamed facer for an insulation board that comprises a fiber glass mat coated with a prefoamed composition comprising a thixotropic polymer latex (binder), a foam sustaining surfactant (surfactant generated microcells), a filler, such as clays and a flame retardant. The Examiner states that Martin et al.’s invention relates to insulating microspheres for providing a high insulating value to insulating coatings and that it would have been obvious to the skilled artisan to combine Horner Jr. et al and Martin et al. The Examiner states that “since Horner teaches that both aluminum foil and fiber glass mat are conventional facers, it would have been obvious to one of ordinary skill in the art to substitute the fiber glass mat of the foamed facer with an aluminum foil” and that “the selection of a known equivalent material based on its suitability of its intended use supported a prima facie obviousness determination.”

Applicants respectfully disagree. First, with respect to Horner Jr. et al., a skilled artisan would not view aluminum foil as an equivalent of the fiber glass mat and would not substitute the fiber glass mat of the foamed facer with aluminum foil for the reasons that follow.

Horner Jr. et al. teach that the facer of the invention comprises a dry, preformed fibrous mat substrate on which is coated a pre-frothed or pre-foamed composition containing a natural or synthetic thixotropic latex polymer, surfactant and an inorganic mineral filler. Col. 3, lines 1-6. The facer product contains less than 50% fiber and preferably from about 30-46% fiber which comes from the mat. Col. 3, lines 11-14. Horner Jr. et al. further teaches that “mats having glass fibers in random orientation are preferred for their resistance to heat generated

during the manufacture of insulation boards and flame resistance in the finished product.” Col. 3, lines 29-32. Thus, Horner Jr. et al. view the nature and content of the fibrous mat to be an integral part of the facers described.

Horner Jr. et al. further teach that aluminum facers and foils “reflect heat into the foam during processing which leads to disruption of cell structure.” Col. 2, lines 20-22. Obviously, Horner Jr. et al. view heat generation and heat reflection as an undesirable characteristic to be avoided. Thus, the skilled artisan looking to Horner Jr. et al. would conclude that aluminum foil is not an equivalent of a fibrous mat for use in Horner Jr et al.’s foamed facers, even though Horner Jr. et al. recognize that both of these materials can be used as a second facer for different applications. See col.5, line 35 to col. 6, line 39.

As noted, the fibrous mat of the foamed facer of Horner Jr. et al. has important desirable characteristics that are sought to be preserved. Horner Jr. et al. accomplish this by the use of a prefoamed coating that does not penetrate and/or bleed through the mat. Col. 4, lines 31-39. The lack of penetration and bleed-through is important because it results in an enhancement of the “bonding strength between the uncoated fibers and the core material in the resulting product . . . due to reduced penetration of the coating mixture into the mat.” Col. 5, lines 4-12. That is, because the prefoamed coating does not penetrate and/or bleed-through the mat, the interstices of the mat are maintained, thus allowing for the core material of the insulation board to penetrate the interstices and form a bond with the foamed facer. Accordingly, when the core material is poured onto the foamed facer or the foamed facer is applied to the core material, Horner Jr. et al. teach that the uncoated surface of the facer with the intact interstices of the fiber mat contacts and engages the core material. Col. 6, lines 13-16 and lines 36-39. For this reason also, the skilled artisan would not consider it possible to replace the fiber mat with aluminum foil because aluminum foil does not have interstices and would not engage or bond well with the core material. There is nothing in the teachings of Martin et al. that would remedy the deficiencies of

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Horner Jr. et al. Thus, whether taken alone or in combination, the Horner Jr. et al. and Martin et al. do not teach or suggest all the elements of the present claims.

Accordingly, Applicants respectfully request withdrawal of the rejection of the claims under 35 U.S.C. §103(a) as obvious over Horner Jr. et al. in view of Martin et al.

Conclusion

In view of the foregoing remarks, Applicants submit that the present invention is now in condition for allowance. Accordingly, favorable reconsideration of the application is earnestly solicited. Please send any further correspondence relating to this application to the undersigned attorneys at the address below.

Applicants' undersigned attorneys may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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